FACT SHEET FOR STATE WASTE DISCHARGE PERMIT NO. ST 5050
GENERAL CHEMICAL CORPORATION

Issuance Date: _____

TABLE OF CONTENTS

Page

INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST5050. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the state of Washington. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington state law (RCW 90.48.080 and 90.48.162) requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits (Chapter 173-216 WAC), and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments.

GENERAL INFORMATION

Applicant:	General Chemical Corporation
Facility Name and Address:	General Chemical Corporation 2611 West 26th Street Extension Vancouver, Washington 98660
Type of Facility:	Aluminum Sulfate Production
SIC Code:	2819
Type of Treatment:	pH neutralization
Legal Description of Application Area:	Section 21, township 2N, range 1E Latitude: 45° 38' 27" N. Longitude: 122° 41' 58" W.
Contact at Facility:	Telephone #: (360) 693-2537
Responsible Official:	Name: Caryn B. DiLelio Title:Environmental, Health & Safety Manager Address: 90 East Halsey Road, Parsippany, New Jersey 07054 Telephone #: (973) 515-0900; FAX #: (973) 515-3244

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

General Chemical Corporation operates an alum (aluminum sulfate) manufacturing facility in Vancouver, Washington approximately 1.5 miles northwest of the downtown. The facility is located approximately one-quarter mile north of the Columbia River and two miles southeast of Vancouver Lake. The facility began producing alum in 1941. Currently, the facility discharges process wastewater and stormwater to a mud pond within the facility boundary. This is authorized under a State Waste Discharge Permit No. ST5050. The permit was originally issued on October 12, 1987, and expired on October 12, 1992. The permit has been administratively extended on August 24, 1993.

INDUSTRIAL PROCESSES

Bauxite ore and/or alternate alumina source is mixed with sulfuric acid and water in an agitated tank. The heat of reaction causes the mixture to boil and resultant steam is vented to the atmosphere via a demister. Following digestion and settling, the liquid product (aluminum sulfate or alum) is transferred from the reaction tank to storage tanks. The insoluble residue is transferred to wash tanks where residual alum is reclaimed. The process residue which consists primarily of silica is then neutralized with lime and transferred to a containment pond (mud pond).

TREATMENT PROCESSES

After decantation of clear liquid lime is added to the reclamation tanks where the alum residue (pH of 4 to 5) is neutralized to a pH of 7 before being discharged top the mud pond (Figure 1). The alum slurry is discharged to the mud pond on a batch basis. Each batch discharge is between 5000 to 6000 gallons. Between two to three batch discharges occur on a daily basis.

Storm water that falls in the sulfuric acid containment area is also collected and treated with lime along with alum residue in the reclamation tank only if the pH is not in the range of 7 to 10. Otherwise the stormwater is batch discharged to the mud pond (Figure 1).

LAND APPLICATION

The mud pond to which treated process wastewater and contact stormwater is discharged is approximately seven acres (Figure 2). The pond is contained by an earthen berm around its boundary. The treated waste alum mud slurry and contact storm water is pumped to the mud pond. The suspended solids settle out and the liquid leaves the pond either through evaporation or infiltration.

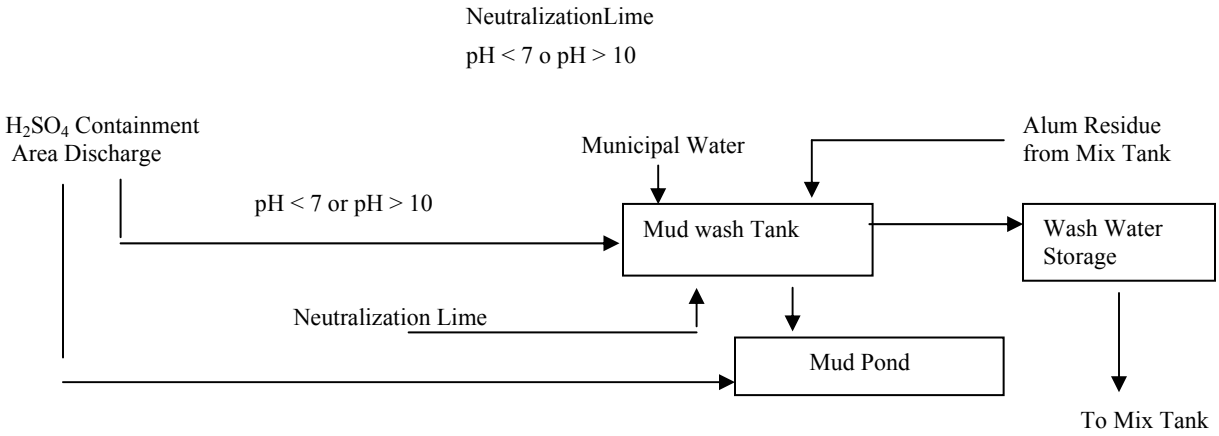

Figure 1. Treatment and disposal of waste streams

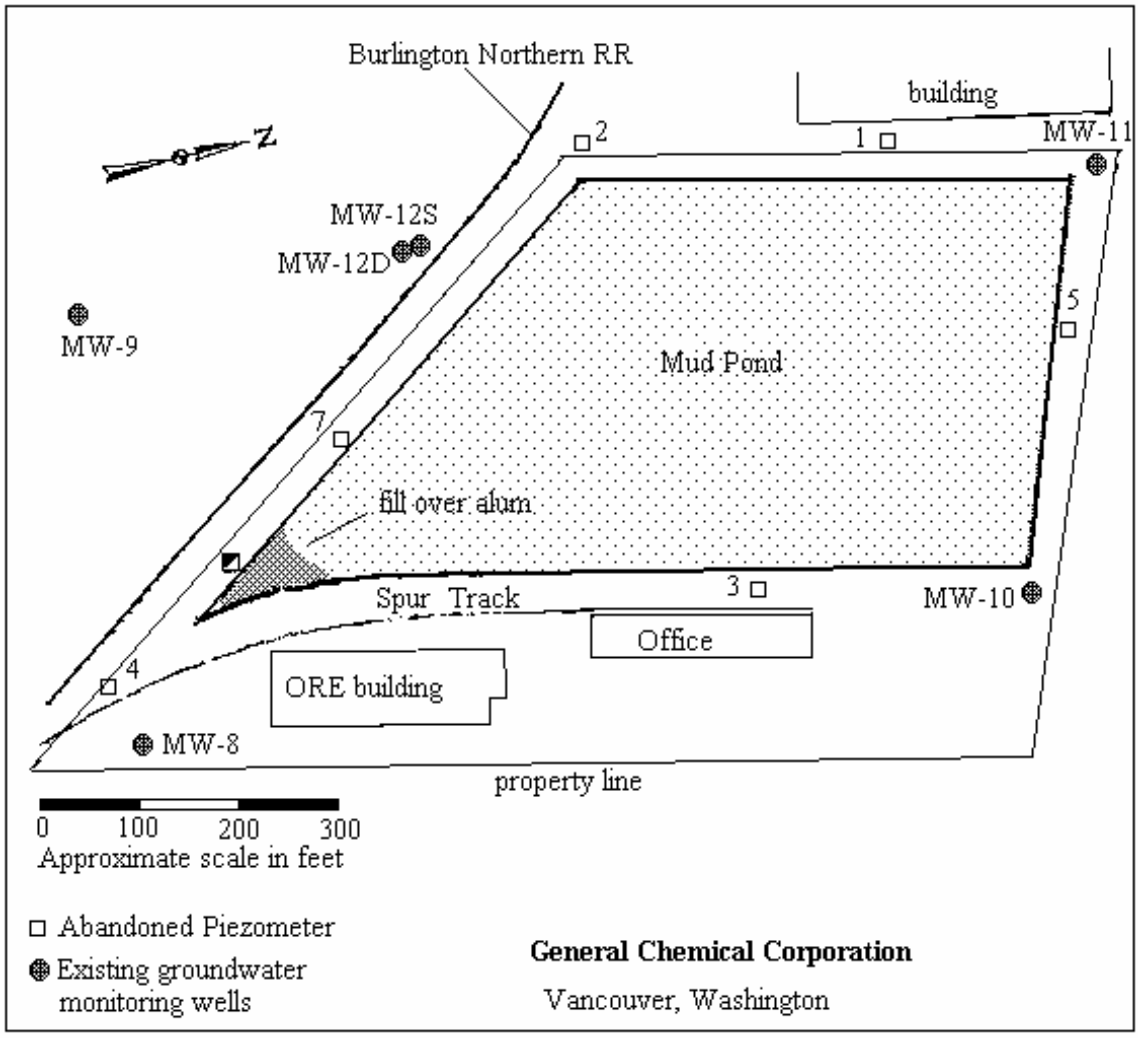

Figure 2. Site Plan and well locations

GROUNDWATER

The groundwater flow direction in the Vancouver region is to the southwest. Although some groundwater discharges directly into the Columbia River, the majority discharges into springs and seeps which in turn feed tributary streams. The tributaries eventually discharge into the Columbia River (Hart Crowser, 1988).

There are two important aquifers in the site vicinity, the Lower Orchards Aquifer and the Troutsdale Aquifer. The Lower Orchards Aquifer occurs above the Troutsdale Aquifer and is characterized by higher well yields due to its transmissivity relative to the Troutsdale Aquifer. The Lower Orchards Aquifer is the principal groundwater source for domestic, industrial and municipal use.

The City of Vancouver water supplies are obtained from production wells that are located approximately two miles northeast of the site. The water supply wells are screened at an elevation of approximately 25 feet below mean sea level (MSL) within the Lower Orchards Aquifer. This aquifer zone occurs at a lower elevation beneath the site at approximately 50 feet below MSL. Although tidal fluctuations do effect the local flow gradients, the predominant flow in the vicinity of the site is southerly toward the Columbia River away from the municipal water supply wells.

There appears to be four distinguishable statigraphic units that influence the groundwater flow at the site. These four units include:

- a shallow perched aquifer consisting of 10 feet of dredged fill material;
- a confining unit consisting of 2 to 20 feet of discontinuous interbedded silty clay and sandy silt;
- an intermediate zone consisting of medium to fine sand (Orchards Formation);
- aquifer zone consisting of coarse sand and gravel (Lower Orchards Aquifer).

The perched water table exists during the wetter months of the year. A downward groundwater flow gradient appears to exist between the shallow perched groundwater zone and intermediate zone possibly resulting from local mounding due to infiltration of discharge in the pond.

Existing piezometers and well locations are shown in Figure 2 above. The piezometers were abandoned in 1988 due to improper construction and maintenance. The well screen depths and screened geologic unit, based on well logs are summarized in Table 1 below.

Table 1. Existing well screen intervals and geologic locations

Well No.	Screen Interval (ft)	Geologic Unit screened
MW-8	25-45	Intermediate/Coarse Sand & Gravel
MW-9	30-50	Intermediate/Coarse Sand & Gravel
MW-10	30-40	Intermediate
MW-11	34-44	Intermediate
MW-12S	30-35	Intermediate
MW-12D	40-45	Coarse Sand & Gravel

Although the wells do not have screen intervals within the shallow perched zone, the quality of groundwater evaluated at these wells is shown in Table 2 below.

Table 2. Summary of groundwater sampling results

Parameter	Sampling date	MW-8	MW-9	MW-10	MW-11	MW-12D	MW-12S	GW-stds
pH	Mar-90	6.8	6.6	7.1	7.1	7.1	6.9	6.5 - 8.5
	Jun-90	7.1	6.9	6.8	6.9	7.2	6.8	
Arsenic, mg/L	Mar-90	nd/nd	nd/nd	0.0002/nd	0.001/nd	0.001/nd	0.001/nd	0.00005
	Jun-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	
Barium, mg/L	Mar-90	0.02/nd	0.06/nd	0.08/nd	0.06/nd	0.02/nd	0.06/nd	1
	Jun-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	
Cadmium, mg/L	Mar-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	0.01
	Jun-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	
Chromium, mg/L	Mar-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	0.01/nd	0.05
	Jun-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	
Lead, mg/L	Mar-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	0.05
	Jun-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	
Manganese, mg/L	Mar-90	0.15/nd	0.45/nd	0.26/nd	0.12/nd	0.05/nd	2.1/nd	0.05
	Jun-90	0.10/nd	0.15/0.05	0.04/nd	0.01/nd	0.03/nd	1.3/1.2	
Mercury, mg/L	Mar-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	0.002
	Jun-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	
Selenium, mg/L	Mar-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	0.01
	Jun-90	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	nd/nd	
Silver, mg/L	Mar-90	nd/nd	nd/nd	nd/nd	0.04/nd	nd/nd	nd/nd	0.05
	Jun-90	nd/nd	nd/nd	nd/nd	0.01/nd	0.02/nd	nd/nd	
Zinc, mg/L	Mar-90	0.06/nd	0.02/nd	0.42/nd	0.02/nd	0.01/nd	0.05/nd	5
	Jun-90	0.08/nd	0.06/nd	0.01/nd	0.01/nd	0.01/nd	0.02/nd	
TDS, mg/L	Mar-90	5	120	160	90	230	230	500
	Jun-90	--	--	--	--	--	--	
Sulfate, mg/L	Mar-90	40	20	41	28	33	18	250
	Jun-90	--	--	--	--	--	--	

All metals are reported as total/dissolved concentration

Data in Table 2 suggests that the quality of water in the aquifer is within allowable limits for most parameters except for manganese and occasional pH. It should be noted that all the wells included in Table 2 are screened at an interval in the range of 25 to 50 feet. Background monitoring wells have not been established to determine the background groundwater quality.

A rainbow trout bioassay using liquid aluminum sulfate residual mud from the plant suggested no acute toxicity at concentrations between 100 mg/l and 1000 mg/L.

PERMIT STATUS

The previous permit for this facility was issued on October 12, 1987.

An application for permit renewal was submitted to the Department on December 13, 1996, and accepted by the Department on May 8, 1997.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on September 22, 1997. The following graphs show the recent compliance history at the site. The flow at outfall 002 has always been below the permit limit of 19000 GPD. Also, pH at outfall 002 has for the most part within the permit limits of 7 to 10. There was only

one instance where the pH was in excess of 10. Thus, effluent pH was in compliance in excess of 97 percent of the time.

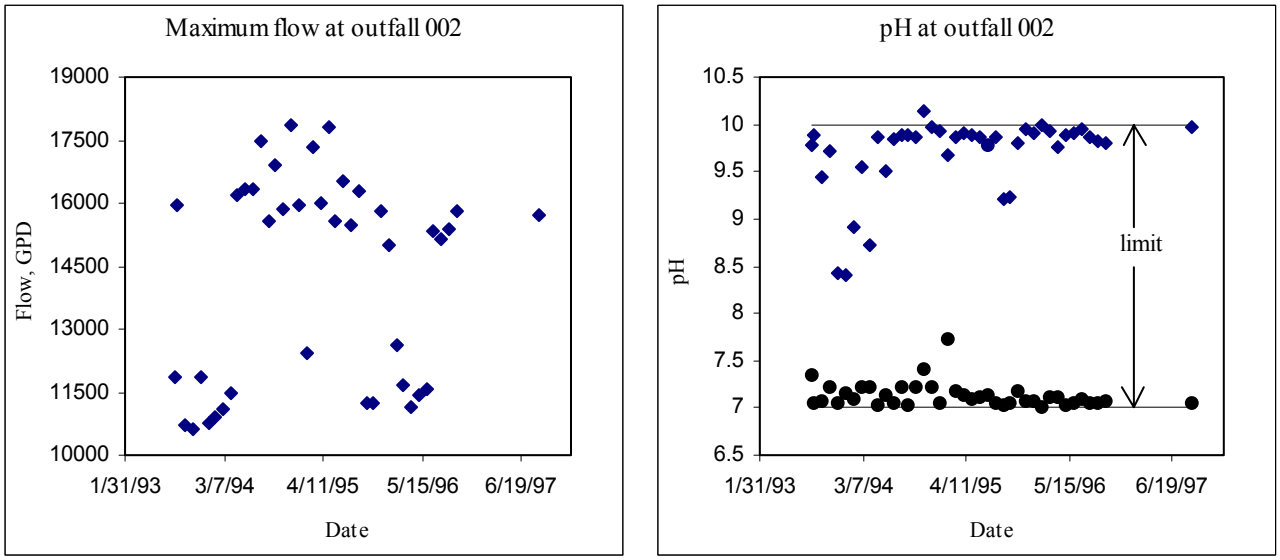

Figure 3. Effluent data for outfall 002

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the permit application and in discharge monitoring reports. The proposed wastewater discharge prior to infiltration or land application is characterized for the following parameters:

Table 3: Wastewater Characterization

Parameter	Concentration
pH	7 to 10
Flow GPD	<19,000

Table 4 shows the quality of a filtered sample of the alum mud slurry. Table 4 also shows the groundwater standards as contained in WAC 173-200. It should be noted that the groundwater standards are applicable at the groundwater table and are included in this table for comparison purposes only.

Table 4: Analytical results on a sample of the filtered alum mud slurry

Parameter	Concentration	GW Stds (WAC 173-200)
pH	3.3	**6.5 – 8.5**
Silver	<0.001 mg/L	0.05 mg/L
Zinc	0.03 mg/L	5 mg/L
Copper	<0.01 mg/L	1 mg/L
Manganese	0.02 mg/L	0.05 mg/L
Chromium (total)	1.07 mg/L	**0.05 mg/L**
Lead	0.018 mg/L	0.05 mg/L
Cadmium	<0.001 mg/L	0.01 mg/L
Total Dissolved Solids	11,900 mg/L	**500 mg/L**
Iron	6.01 mg/L	**0.3 mg/L**
Barium	<0.1 mg/L	1 mg/L
Mercury	<0.0004 mg/L	0.002 mg/L
Arsenic	0.096 mg/L	**0.05 µg/L (0.00005 mg/L)**
Aluminum	1,140 mg/L	---
Sulfate	6,150 mg/L	**250 mg/L**

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the state. The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110).

The minimum requirements to demonstrate compliance with the AKART standard were addressed in the previous permit with the requirement to neutralize the effluent to a pH of between 7 and 10 prior to discharge to the mud pond. An assessment of existing hydrogeologic conditions at the General Chemical Corporation's Vancouver site was conducted and reported to the Department in January of 1988. These reports were completed prior to the development of the *Guidelines for the Preparation of Engineering Reports for Industrial Wastewater Land Application Systems*, May 1993. These guidelines include the

requirements for a hydrogeologic study, an assessment of the groundwater quality (particularly the background quality) and an evaluation of AKART for the discharge prior to (or including) land application. A requirement for assessing the background groundwater quality will be required in this permit. The submitted hydrogeology study is deemed sufficient. AKART determination (pH between 7 and 10) conducted at the time of the previous permit needs to be re-evaluated for two reasons. First, the ground water standard for pH is between 6.5 to 8.5. These standards were promulgated and became effective in December 1990 (after the issuance of the previous permit). Secondly, the amount of lime required to increase the pH of the discharge from <4 to between 6.5 to 8.5 would be less than that required to increase the pH to between 7 and 10. This has been somewhat demonstrated in a laboratory experiment reported in the letter from General Chemical Corporation to the Department dated June 19, 1997. The laboratory experiment was conducted to demonstrate the resistance of the process wastewater to pH changes upon addition of lime. More than 10 times the amount of lime is required for process wastewater compared to that for tap water for the same pH increment. Thus, reducing the target pH range would reduce the amount of lime required. Currently, 66 tons of lime is required annually for neutralization.

A technology based pH limit of 6.5 to 8.5 is being proposed in the new permit. This limit may be changed based on groundwater monitoring as discussed in the following section.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge are included in Table 4.

The Department has reviewed existing records and is unable to determine if background ground water quality is either higher or lower than the criteria given in Chapter 173-200 WAC; therefore, the Department will use the criteria expressed in the regulation in the proposed permit. The discharges authorized by this proposed permit are not expected to interfere with beneficial uses.

Some of the pollutant concentrations in the proposed discharge exceed ground water quality criteria (see Table 4). However, groundwater monitoring results (Table 2) show that standards have not been exceeded. It should be pointed out that when considering discharges to ground the background groundwater quality must be protected. In the case of the General Chemical facility at Vancouver, Washington, the background has not yet been determined. This will be required to be determined in the proposed permit.

Monitoring well data (Table 2) also suggests that the pH has in most instances been above 6.5 and below 8.5, with an average of approximately 7. It should be noted that current monitoring data from these wells is not available. Ground water standard for pH contained in WAC 173-200 is also in the range of 6.5 to 8.5. This is being recommended in the new permit. If background groundwater monitoring suggests that the background pH is less or higher than this limit, then the permit may be modified to include such determination. However, AKART determinations must be considered before making any changes.

In a letter to the Department dated June 12, 1997, General Chemical Corporation requested that they be allowed, as a condition of the permit, to demonstrate that the discharge of untreated process wastewater

(pH 3.5) and storm water (pH 5.2) to the "mud pond" would not result in an exceedence of the groundwater standards at the "point of compliance." The point of compliance being the groundwater table at the property boundary. The basis for the above request is as follows:

1. Since 1987 process wastewater and stormwater collected in the sulfuric acid containment area have been neutralized to a pH of between 7 and 10 prior to discharge to the "mud pond."

2. Storm water from other portions of the site including adjacent City streets is collected in a sump and discharged to the "mud pond" without prior treatment. The total volume of storm water, from all sources, far exceeds the amount of process wastewater discharged to the pond.

3. Historical groundwater data suggests that the pH of groundwater along the down gradient portion of the property has always been above 6.

There is currently no evidence to suggest that discharge of un-neutralized process wastewater (pH of 3.5) would be somehow neutralized within the soil column before reaching the groundwater. An experiment that would evaluate downstream groundwater pH with discharge of un-neutralized process wastewater to the "mud pond" cannot be allowed without first knowing that the soil (or "mud") column would naturally neutralize the process wastewater. Furthermore, groundwater data is of historical importance. No groundwater data since 1990 is available at this time to substantiate the current conditions. Even if the current conditions were similar to the historical data, the effects of discharging un-neutralized process wastewater on groundwater pH can be at best judged to be only detrimental. It should be pointed out that The Hart Crowser report (Preliminary Assessment of Existing Hydrogeologic Conditions at General Chemical Facility in Vancouver, Washington, 1988) submitted with the permit application, concludes that the soil quality data show a higher than background metals concentrations and which appear to decrease with depth indicating that the soils beneath the site act to reduce the loading of metals to the groundwater. It may be inferred that discharge of un-neutralized process wastewater (pH 3.5) may promote the release of these metals to the groundwater. This would not only potentially increase metals concentration in groundwater over background but also potentially increase the total dissolved solids.

Discharge of process wastewater to ground at a pH other than the standard (6.5 to 8.5) may be allowed in cases where the background is sufficiently different from the standard. A study of the background groundwater quality is necessary not only to substantiate the request for discharge of un-neutralized process wastewater but also to determine the background concentrations for metals and dissolved solids.

The resultant effluent limits were as follows:

Table 5. Water Quality-based Limitations.

Parameter	Daily maximum limit
Outfall 002: Process wastewater	
pH	6.5 to 8.5
Flow, GPD	19,800
Outfall 001: H_2SO_4 Containment Area Discharge**	
pH	6.5 to 8.5

** Excessive storm water in the containment area may be treated separately (if pH is outside 6.5 to 8.5 and volume is in excess of the treatment tank capacity) and discharged to the mud pond without first being treated along with process wastewater.

No valid upgradient background data were available for pH, total dissolved solids, metals (chromium, iron, arsenic), and sulfate. The Permittee is required in section S2.B and S8 of the proposed permit to collect background concentrations unaffected by and near the point of discharge. This information may result in a permit modification or limits in the next renewal.

COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT ISSUED OCTOBER 12, 1987

The only major change is the pH limitation in the proposed permit at 6.5 to 8.5. The existing limits are 7 to 10. Also, treated discharge from the H_2SO_4 containment area to the mud pond is allowed if volumes are in excess of the capacity of the process wastewater treatment tank.

Table 6. Comparison of Previous and New Limits (daily maximums)

Parameter	Existing Limits	Proposed Limits
Outfall 002: Process wastewater		
pH	7 to 10	6.5 to 8.5
Flow, GPD	19,800	19,800
Outfall 001: H_2SO_4 Containment Area Discharge		
pH	7 to 10	6.5 to 8.5

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

WASTEWATER MONITORING

The monitoring schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies takes into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Monitoring for total dissolved solids, metals (chromium, iron, and arsenic), and sulfate is being required to further characterize the effluent. This/These pollutant(s) could have a significant impact on the quality of the ground water.

GROUND WATER MONITORING

The monitoring of ground water at the site is required in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that this discharge has a potential to pollute the ground water. Therefore the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-216-110).

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The proposed permit requires the Permittee to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the state of Washington. The Department proposes that the permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Faulkner, S.P., Patrick Jr., W.H., Gambrell, R.P., May-June, 1989. Field Techniques for Measuring Wetland Soil Parameters, Soil Science Society of America Journal, Vol. 53, No.3.

Hart Crowser. 1988. Preliminary Assessment of Existing Hydrogeologic Conditions at general Chemical Facility, Vancouver, Washington.

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.

Washington State University, November, 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on August 21, 1997 in the Columbian to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) in the Columbian to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6280, or by writing to the address listed above.

This permit and fact sheet were written by Anise Ahmed.

APPENDIX B--GLOSSARY

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--RESPONSE TO COMMENTS

Public comments were accepted on the draft permit for a 30-day period. At the close of the public comment period (May 27, 1998), the Department had received comments from the following interested parties:

Caryn B. DiLelio, General Chemical Corporation

The following responses to comments have been prepared by the Department.

Comment:

All the storm water at the General Chemical Corporation facility in Vancouver naturally drains, or is discharged, to the on-site mud pond. Currently, all precipitation that falls into the facility's secondary containment areas is pumped into the plant where it is neutralized with lime to a minimum pH of 7.0 S.U. prior to being batch-discharged to the on-site mud pond. This storm water management procedure as currently required poses an unmanageable burden on plant operations due to capacity limitations of available process vessels, operational staff resource requirements, and the high cost associated with the lime material required for neutralization.

During heavy rainfall events, there is a possibility for the volume of storm water collected singularly within the secondary containment areas to exceed the facility's total allowable daily discharge volume for storm water and neutralized mud wash water combined. This occurrence further restricts operations where the routine discharge of neutralized mud wash water, as specifically allowed in the currently applicable Discharge Permit, is essential to the uninterrupted operation of the plant.

The pH of storm water from the roof of die facility's offices and other non-process related structures is routinely measured at a pH $\leq$ 5.5 S.U. The requirement to neutralize the facility's storm water, which is representative of the naturally low pH storm water occurring in this region seems to be beyond realistic treatment expectation and an excessive burden on the facility, for the reasons previously described.

General Chemical, therefore, respectfully requests that the Department reconsider the current requirement to neutralize non-process storm water collected in secondary containment areas, in the development of the revised Discharge Permit. The proposed procedural option would require a pH comparison be performed on the storm water in non-process areas with the collected storm water in secondary containment. Once the collected secondary containment storm water pH for a given storm event is verified to be within 1.0 S.U. of the storm water in non-process areas, batch-discharge of untreated collected secondary containment storm water would be permitted to the mud pond.

Please review this request and draft storm water management procedural option at your convenience. Should you have any questions or comments relative to this request, please feel free to contact me at your convenience.

Response:

The Department concurs that requiring the treatment of storm water collected in the H_2SO_4 containment area seems inappropriate if the pH is similar to that of the storm water from the rest of the facility. The Department understands that the pH of the rainfall in the area may be somewhat below 6.5.

The electrode method (4500-H^+ B) of pH measurement contained in "Standard Methods for the Examination of Water and Wastewater" 17th edition (1989) establishes the precision of pH measurement, particularly in poorly buffered solutions, as ±0.1 pH units. Thus, when equating two pH readings (the site rainfall and containment area storm water) each with a precision of ±0.1 pH units the maximum differential allowed between the two readings is 0.2 pH units. The Department's Manchester Laboratory in their QA/QC survey of 50 laboratories determined that the error between the laboratories was in the order of 0.27. A pH differential of 0.3 seems reasonable when comparing the pH of uncontaminated site rainfall and the H_2SO_4 containment storm water.

Action Taken:

Language included in permit condition S1 and S2 to provide for discharge of containment area storm water if the pH is similar to that of the site rainfall. The similarity shall be determined with the allowable pH differential as discussed above.